



A Survey of traditional medicinal knowledge for the treatment of Asthma, Cold, Cough, Fever, Jaundice and Rheumatism of Santal tribal practitioners of Chapai Nawabganj district, Bangladesh

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General Note

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ABSTRACT

A Survey of traditional medicinal knowledge for the treatment of asthma, cold, cough, fever, jaundice and rheumatism of Santal tribal practitioners of Chapai Nawabganj district, Bangladesh was carried out. The information presented in this paper was gathered by field visit, participatory observation, group discussion and interviews with questionnaires in the year July 2013 to June 2015 after frequent field visit in the study area. A total of 52 ethno-medicinal plant species belonging to 35 families and 49 genera are documented in this study. For each species scientific name, local name, family name, habit, ailments, treatment process and parts used are provided. Therefore, it would be important to document the traditional knowledge of medicinal plants for further healing purpose.

Keywords: Medicinal Plants, Traditional Knowledge, Drug Discovery, Chapai Nawabganj, Bangladesh.

1. INTRODUCTION

From time immemorial, man has been dependent on nature for survival. This dependency led the aboriginal people living in harmony with nature to evolve a unique system of knowledge about plant wealth by trial and error methods. Traditionally, this treasure of knowledge has been passed on orally from generation to generation without any written document and is still retained by various indigenous groups around the world (Perumal and Ignacimuthu, 2000). There are 2,50,000 higher plant species are known in the earth, more than 85,000 plant species are medicinal. Collection of information and documentation of traditional knowledge plays an important role in scientific research on drug development (Duke and Wain, 1981). WHO depicts that over 80% of world's population depends on biological resources for their primary healthcare demands (WHO, 1999).

Studies on ethno-medicinal information of ethnic communities in Bangladesh are at initial stage. Several ethno-medicinal studies in Bangladesh have been carried out by Alam (1992), Alam et al (1996), Chakma et al (2003), Choudhury and Rahmatullah (2012), Faruque and Uddin (2014), Khisha (1996), Rahman et al (2008a, 2008b, 2010, 2012, 2013a, 2013b, 2013c, 2013d, 2014a, 2014b, 2014c, 2015), Rahman and Akter (2013), Rahman and Khanom (2013), Rahman (2013a, 2013b, 2013c, 2014d, 2013e, 2013f, 2013g, 2013h, 2013i, 2013j, 2013k, 2014a, 2014b, 2015a, 2015b, 2015c), Rahman and Gulshana (2014), Rahman and Parvin (2014), Rahman and Rahman (2014), Rahman and Rojonigondha (2014), Rahman and Kumar (2015), Rahman and Keya (2015), Rahman and Debnath (2015) and Uddin et al (2001, 2004, 2006, 2008, 2012, 2014). In this present research article was too reported about local ethno-botanical uses of plants collected from traditional practitioners to cure six (6) human diseases of Chapai Nawabganj district, Bangladesh.

2. MATERIALS AND METHODS

A total of twenty one field trips were made for the documentation of ethno-botanical knowledge during July 2013 to June 2015. During the field interview, the information was noted in the documentation data sheet. All the information regarding plant species, biological forms, habitat, local names and uses was documented. Medicinal information was obtained through semi-structured interviews with knowledgeable people such as local Kabiraj/Herbalists and elderly people. Plant specimens were collected with flowers and fruits and processed using standard herbarium techniques (Alexiades, 1996). The identification of plant specimens was achieved through the help of taxonomic experts and by comparison with the identified herbarium specimens and available literatures, i.e. Ahmad et al (2008-2009), Nahar and Rahman (2016), Hooker (1961), Prain (1963), Kirtikar and Basu (1987), Huq (1986) and Pasha and Uddin (2013). The voucher specimens are deposited at the Herbarium, Department of Botany, Rajshahi University for future reference.

3. RESULTS AND DISCUSSION

In the present survey, a total of 52 plant species belonging to 49 genera and 35 families were recorded (Table 1). Out of these plants species, 19 (36.53%) belonged to herbs, 17 (32.69%) trees, 11 (21.15%) shrubs, and 5 (9.61%) climbers (Figure 1). For each species scientific name, local name, family, habit, mode of uses and part(s) used are provided. The most frequently used species for the treatment of different diseases are *Allium cepa* L., *Allium sativum* L., *Amorphophallus campanulatus* (Roxb.) Bl. ex. Decne., *Alstonia scholaris* (L.) R. Br., *Averrhoa carambola* L., *Azadirachta indica* A. Juss., *Brassica napus* L., *Curcuma longa* L., *Cynodon dactylon* (L.) Pers., *Elaeocarpus robustus* Roxb., *Ficus racemosa* L., *Justicia adhatoda*, *Moringa oleifera* Lam., *Ocimum sanctum* L., *Piper nigrum* L., *Syzygium cumini* (L.) Skeel., *Tamarindus indica* L., *Terminalia arjuna* (Roxb. ex DC.) Wight & Arn., *Vitex negundo* L., *Withania somnifera* (L.) Dunal. and *Zizyphus mauritiana* Lamk.

Use of plant parts as medicine shows variation (Table 1). Leaves (38.46%) are the leading part used in a majority of medicinal plants followed by 7.69% root, 21.15% fruit, 3.84% flower, 7.69% whole plant, 9.61% bark, 3.84% stem, 5.76% seed, 1.92% gum, 1.92% bulb, 3.84% tuber, 1.92% latex and 3.84% rhizome. Distribution of medicinal plant species in the families shows variation. Moraceae is represented by 4 species; Solanaceae is represented by 3 species. Each of Liliaceae, Araceae, Cucurbitaceae, Zingiberaceae, Rutaceae, Euphorbiaceae, Poaceae, Asteraceae, Lamiaceae, Verbenaceae and Piperaceae is represented by 2 species while a single species in each was recorded by 22 families (Table 1). The survey indicated that the common medicinal plant families in the study area are Acanthaceae, Amaranthaceae, Apocynaceae, Apiaceae, Araceae, Asclepiadaceae, Asteraceae, Bombacaceae, Cucurbitaceae, Combretaceae, Convolvulaceae, Euphorbiaceae, Fabaceae, Lamiaceae, Liliaceae, Meliaceae, Moraceae, Myrtaceae, Poaceae, Piperaceae, Rutaceae, Solanaceae and Zingiberaceae. This finding of common medicinal plant families in the study is in agreement with Anisuzzaman et al (2007); Ghani (2003); Khan and Huq (1975), Khan (1998), Kona and Rahman (2016), Jamila and Rahman (2016a, 2016b), Nahar et al (2016), Jamila et al (2016), Islam and Rahman (2016) and Yusuf et al (2006, 2009).

Table 1 Medicinal plants used by Santal tribal practitioners of Chapai Nawabganj District, Bangladesh

S/N	Scientific Name	Local Name	Family Name	Habit	Parts used	Ailments and Treatment process
1	<i>Allium cepa</i> L.	Piaj	Liliaceae	Herb	Bulb	Warm blub juice along with <i>Brassica napus</i> oil is taken massage the whole body to cure cough.
2	<i>Allium sativum</i> L.	Rosun	Lilaceae	Herb	Leaf	Slightly warm juice of leaves is used in cough.
3	<i>Amorphophallus campanulatus</i> (Roxb.) Bl. ex. Decne.	Olka chu	Araceae	Herb	Tuber	Curry of tuber is used in asthma.
4	<i>Alternanthera philoxeroides</i> (Mart.) Griseb.	Helen cha	Amaranthaceae	Herb	Whole plant	Plant juice is used for fever.
5	<i>Alstonia scholaris</i> (L.) R. Br.	Chhatim	Apocynaceae	Tree	Bark	Paste made from dry bark is used in rheumatism.
6	<i>Argemone mexicana</i> L.	Shial kanta	Papaveraceae	Herb	Latex	Juice made from latex is used in jaundice.
7	<i>Averrhoa</i>	Kam	Averrhoaceae	Tree	Fruit, Leaf	Decoction of leaves and fruits is

	<i>carambola</i> L.	ranga				taken to cure influenza fever.
8	<i>Azadirachta indica</i> A. Juss.	Neem	Meliaceae	Tree	Leaf	Juice of leaves is used in jaundice.
9	<i>Bombax ceiba</i> L.	Shimul	Bombacaceae	Tree	Root- bark	Grinding decoction of root -bark is taken to cure rheumatism.
10	<i>Brassica napus</i> L.	Sorisha	Brassicaceae	Herb	Seed	Slightly warm oil is used for cold and cough.
11	<i>Cajanus cajan</i> (L.) Huth.	Arhor daal	Fabaceae	Shurb	Leaf, Seed	Decoction leaves and seeds are used in cough. Juice made from leaves is used in jaundice.
12	<i>Calotropis procera</i> (Aiton) W. T. Aiton	Shet Akand	Asclepiadaceae	Shrub	Gum	Along with mustard oil mucus or gums paste is used in rheumatism.
13	<i>Coriandrum sativum</i> L.	Dhone	Apiaceae	Herb	Whole plant	Juice of whole plant mixed with salt is used for cold, cough and fever.
14	<i>Coccinia grandis</i> (L.) Voigt	Tela kucha	Cucurbitaceae	Climber	Leaf	Crushed leaves juice mixed with water are used for fever.
15	<i>Capsicum frutescens</i> L.	Marich	Solanaceae	Shrub	Leaf	Fruits extract along with lemon juice and sugar is used in cold.
16	<i>Curcuma longa</i> L.	Holud	Zingiberaceae	Herb	Rhizome	Fresh rhizome juice mixed with honey is taken for cold.
17	<i>Croton bonplandianum</i> Baill.	Croton	Euphorbiaceae	Herb	Leaf	Juice obtained from leaves is used in cough.
18	<i>Citrus aurantifolia</i> (Christ.) Sw.	Lebu	Rutaceae	Shrub	Fruit	Juice obtained from fruits along with warm water and honey is used in catarrhal fever.
19	<i>Cynodon dactylon</i>	Durba	Poaceae	Herb	Whole	Decoction of whole plant is taken

	(L.) Pers.	ghas			plant	orally to cure cough.
20	<i>Cyperus rotundus</i> L.	Mutha	Cyperaceae	Herb	Tuber	Decoction of the tubers is used in fever.
21	<i>Eichhornia crassipes</i> (Mart.) Sol.-Lau.	Kochuri pana	Pontederiaceae	Herb	Whole plant	Juice of the plant is used in asthma.
22	<i>Elaeocarpus robustus</i> Roxb.	Jolpai	Elaeocarpaceae	Tree	Fruit	Fruits juice is used in cold and cough.
23	<i>Eupatorium triplinerve</i> Vahl.	Ayapan	Asteraceae	Shrub	Leaf	Extract prepared from leaf is taken to cure fever.
24	<i>Ficus hispida</i> L. f.	Khoksha dumur	Moraceae	Tree	Fruit	Decoction of fruits is used for jaundice.
25	<i>Ficus religiosa</i> L.	Pakur	Moraceae	Tree	Fruit	The dried fruit, pulverized and taken in water for a fortnight removes asthma.
26	<i>Ficus racemosa</i> L.	Jagdumu r	Moraceae	Tree	Fruit	Fruits extracts or cooked vegetable are taken orally for dry cough.
27	<i>Ipomoea aquatica</i> Forssk.	Kalmi shak	Convolvulaceae	Climber	Leaf	Dried leaves powder mixed with water is used in jaundice.
28	<i>Justicia adhatoda</i> L.	Basak	Acanthaceae	Shrub	Leaf	Juice obtained from macerated leaves is taken to cure fever.
29	<i>Lagenaria siceraria</i> (Mol.) Stan.	Lau	Cucurbitaceae	Climber	Leaf	Pulp of the fruit is used for dry cough.
30	<i>Lasia spinosa</i> (L.) Thw.	Kanta kachu	Araceae	Herb	Stem, Leaf	Stem and leaves are curry with fish is used to cure rheumatism.
31	<i>Leucas cephalotes</i> (Roth.) Spreng.	Danda kolos	Lamiaceae	Herb	Flower	Decoction of flowers is taken orally for cold.
32	<i>Mangifera indica</i> L.	Aam	Anacardiaceae	Tree	Leaf	Decoction of the leaves is given

						to cure fever.
33	<i>Morus indica</i> L.	Tut	Moraceae	Tree	Leaf, Bark	Decoction of leaf and bark is used in cough.
34	<i>Moringa oleifera</i> Lam.	Sojna	Moringaceae	Tree	Root, seed	Roots extract juice is used for fever. Seed oil is given for rheumatism.
35	<i>Murraya paniculata</i> (L.) Jack	Kamini	Rutaceae	Shrub	Root	Decoctions of roots are taken to cure rheumatism.
36	<i>Nyctanthes arbortristis</i> L.	Sheuli	Verbenaceae	Tree	Leaf	Leaves juice mixed honey is used in chronic fever of children. Leaves juice mixed with water and zinger juice is used in bilious fever.
37	<i>Nelumbo nucifera</i> Gaertn.	Poddo	Nelumbonaceae	Herb	Flower	Decoction of flowers is used in cough and fever.
38	<i>Ocimum sanctum</i> L.	Tulshi	Lamiaceae	Herb	Leaf	Slightly warmed leaf juice is used to treat cold and cough.
39	<i>Piper betle</i> L.	Betel	Piperaceae	Climber	Leaf	Decoction of leaves is used for cough.
40	<i>Piper nigrum</i> L.	Golmaric h	Piperaceae	Climber	Dry fruit	Decoction of the dried fruits is used for cough.
41	<i>Polyalthia longifolia</i> (Sonn.)Thw.	Debdaru	Annonaceae	Tree	Bark	Decoction of bark is used for fever.
42	<i>Ricinus communis</i> L.	Bhe renda	Euphorbiaceae	Shrub	Leaf	Seed oil is externally used in rheumatism.
43	<i>Saccharum officinarum</i> L.	Aakh	Poaceae	Shurb	Stem	Stem juice is used to cure fever and jaundice.
44	<i>Solanum nigrum</i> L.	Tit begun	Solanaceae	Herb	Fruit	Syrup of the fruit is used in fever.

45	<i>Syzygium cumini</i> (L.) Skeel.	Jam	Myrtaceae	Tree	Bark	Decoction of bark is used in asthma.
46	<i>Tagetes erecta</i> L.	Genda phul	Asteraceae	Herb	Leaf	Infusion of the plant is used against rheumatism.
47	<i>Tamarindus indica</i> L.	Tetul	Caesalpinaceae	Tree	Fruit	Pulp of the ripe fruit is a household remedy for fever.
48	<i>Terminalia billirica</i> (Gaertn.) Roxb.	Bahera	Combretaceae	Tree	Green fruit	Decoction of green fruit taken to cure cough.
49	<i>Vitex negundo</i> L.	Nisinda	Verbenaceae	Shrub	Leaf	A decoction of the leaves along with long pepper is given in catarrhal fever.
50	<i>Withania somnifera</i> (L.) Dunal.	Aswa gandha	Solanaceae	Shrub	Root	Decoction of root is used for asthma.
51	<i>Zingiber officinale</i> Roscoe.	Ada	Zingiberaceae	Herb	Rhizome	A mixture of ginger juice, leaf juice of <i>Ocimum sanctum</i> and honey is taken orally to infantile cough and catarrhal fever. Decoction of dried ginger is used to cure cough and asthma.
52	<i>Zizyphus mauritiana</i> Lamk.	Boroi	Rhamnaceae	Tree	Fruit	Young fruits are used for cough.

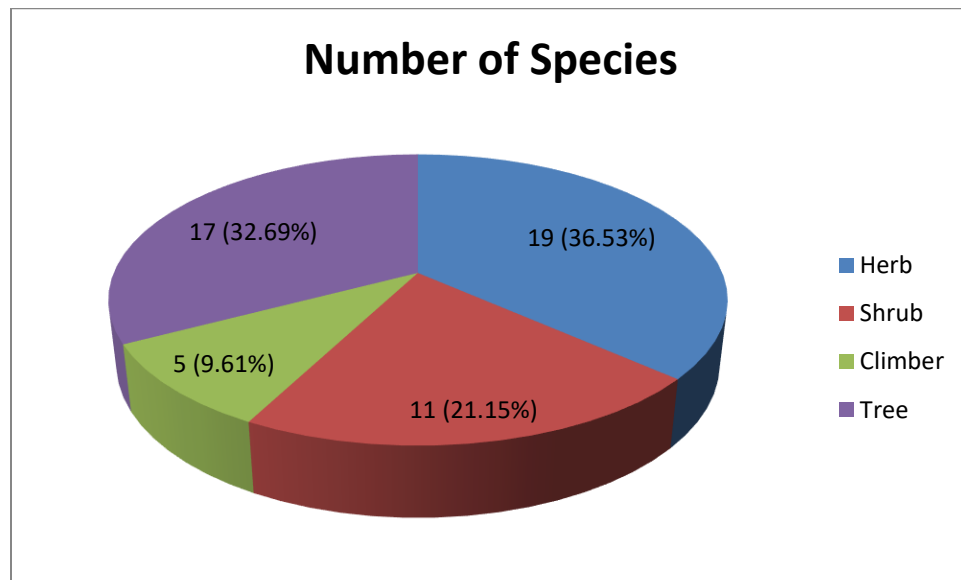


Figure 1 Habit analyses of used plant species in the study area

Photographs of Important Medicinal Plants



Alstonia scholaris

Averrhoa carambola

Azadirachta indica

Calotropis procera



Coccinia grandis

Ficus racemosa

Mangifera indica

Moringa oleifera

*Tamarindus indica**Vitex negundo**Terminalia blirica**Zizyphus mauritiana**Syzygium cumini**Ocimum sanctum**Bombax ceiba**Citrus aurantifolia**Eichhornia crassipes**Justicia adhatoda**Lagenaria siceraria**Piper nigrum*

4. CONCLUSION

This study showed that the traditional uses of medicinal plants which might be used as positive indicator for the effectiveness of the reported medicinal plants in treating many human ailments and diseases. The present findings are the first record of medicobotanical knowledge in the study area. The information given in the present study will be helpful for the pharmacognosist, botanist and pharmacologist for the collection and identification of the plant for their research work. The survey may create awareness on the importance of medicinal plants among young budding botanists.

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